

Traffic Engineering in Cities of 100,000 to 150,000

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Teamwork, is the key to a successful program dealing with the problems of transportation, traffic control and accident prevention. What's more, John Q. Public wants action when congestion louses up his personal affairs, but instead of griping aimlessly, the public will back an intelligent program aimed at finding a solution to the problem. The public wants a traffic plan that will work, the public officials want a practical solution, and know that it will get the public to back an intelligent program aimed at finding a solution to the problem. The press will add its important voice to a traffic and safety plan that is sound in its approach.

City officials have, in the past, recognized that hit-or-miss procedures would never work. The city fathers have learned the hard way, through experience, that the traffic and transportation problems of a city is a designed operation, which requires administrative ability of someone trained, especially in traffic engineering; that a department within the structure of the city government is needed, with a traffic engineer as head of the department, with equal status with all other department heads, and with all operations to be carried out under the city code or ordinance. If a traffic engineering program is to succeed, the engineer should have authority to insure proper results from the envisioned traffic engineering program, with sufficient funds allocated to do the job.

With public backing and administrative leadership and cooperation assured by the city government, the press should be tied into the program to rally public support, explain the importance of some of the changes necessary, and to keep the public informed on all phases of traffic engineering and safety.

As you all know, there is no substitute for support and aid given a traffic engineer by the three groups just mentioned, and this support is an important part of any successful traffic engineering program.

The foundation of a sound and logical engineering program is through the collection of data from factual studies and surveys. This data is needed as an initial step towards formulating a complete

traffic improvement plan. Facts dictate what policies should be followed to increase the orderly flow of traffic, and no sound approach to the problem is possible without the facts. Proper information is needed in applying remedial measures in any given situation. The facts should be studied thoroughly from every angle before any final decisions are reached. With this information a traffic improvement plan can be formulated. Corrective changes at serious locations should be given first priority. Corrective measures at some locations will have to be set up in stages, with each stage only a part of the final project. An over-all traffic improvement plan requires constant study and from time to time certain revisions will be necessary.

When carrying out traffic engineering plans there are always difficulties and obstacles which must be overcome. Practically all of these difficulties can be settled on a friendly basis providing they are approached properly. There are times when the convenience of a few must be sacrificed for the good of the majority and when such things happen it is only natural for the inconvenienced ones to object to the plan. In cases such as this, the traffic engineer must be familiar with all of the facts in order to explain why the chosen solution is the best and why other remedies cannot work. Frequently some agreement can be reached by a compromise of minor details and changes to satisfy everyone concerned.

There are times when unforeseen circumstances in the field will prevent a seemingly good plan from working. In view of this, it is advisable that some plans be first tried on an experimental basis as a temporary measure.

It has been my experience that people, once they understand the aims of traffic engineering in a given situation, are willing to lend evergrowing support to the program. They must be able to see tangible results in the traffic improvements, however, or they will lose faith in all changes which may be made in the future. It is very difficult to get motorists to change their driving habits unless the reason is sound and they themselves can see some logic behind the change. Some people who have criticized improvement plans before they have been given a fair trial have later realized their mistake and admitted that they were too hasty in their actions.

In addition to the investigations and recommendations in regard to traffic control devices, the traffic engineer should have full charge of installation and maintenance. Regardless of the size of the city, or the traffic problems present, in order to do a sound, logical traffic engineering job, "teamwork" within the city administration is necessary and definite lines of authority and a policy should be established.

Since my part in the program deals with traffic engineering in cities over 100,000 and since the above mentioned facts are a reality in the City of Charlotte, I would like to review the accomplishments and achievements of the traffic engineering department, but first I would like to outline the duties and functions of the department:

1. The duties of the traffic engineering department are outlined in the city code.
2. A policy has been set up and definite lines of authority have been established.
3. The traffic engineer plans, directs and coordinates activities of this division.
4. Formulates the administrative and fiscal program of the traffic engineering division.
5. Initiates necessary traffic engineering studies, investigations, and review analysis and interpretation of compiled traffic data and recommendations for operations and improvements.
6. Guides programs and procedures for the design and installation, maintenance and operation of traffic control devices.
7. Directs traffic planning and research programs.
8. Reviews sub-division plans as they pertain to the street traffic.
9. Participates in meetings of the planning commission.
10. Advisory member of the parking authority.
11. Cooperates with other agencies in development of ways and means of improving traffic conditions.
12. Authority for the installation of street lights and approval of driveway entrance permits.

The traffic engineering department has full department status in the city government with the traffic engineer being directly responsible to the city manager.

The office staff of the department consists of the traffic engineer, assistant traffic engineer, traffic investigators, draftsman, and secretary. Additional personnel is employed whenever they are needed for survey work.

The maintenance division is composed of 16 men who have charge of all installation and maintenance of traffic control devices. The department also employs extra personnel in the construction division, as this department does its own construction as it pertains to intersection redesign and channelization.

Six major reports and surveys were conducted by the traffic engineering department:

1. One-way street system—we now have 10 streets, total of 9 miles of one-way streets.
2. Street parking survey—we now have 1200 meters set up in 36 minute, 60 minute, 90 minute and 120 minute zones.
3. Mass transportation or bus survey. (Adopted in part.)
4. Truck route survey. (Adopted 1952.)
5. On and off-street parking survey. (Under study by council.)
6. The department is now conducting a major street report.

OUTLINE FOR MAJOR STREET REPORT

1. *Existing Factors*

- (a) Population Distribution
- (b) Vehicle Distribution
- (c) Educational & Recreational Facilities
- (d) State & Federal Highway System
- (e) Areas of Traffic Concentration
- (f) Transportation Facilities
- (g) Traffic volumes
- (h) Origin and Destination Survey
 1. Flow lines, internal trips
 2. Through trips, truck and auto
 3. Flow lines, City limits to zones

2. *Planned Improvements*

- (a) New streets
- (b) Improvements to existing streets
- (c) Circumferential routes
- (d) Grade crossing elimination program

The traffic engineering department maintains paint markings on 110 miles of city streets with center-lines and lane-lines, and 145 intersections are painted with cross-walks. Since the traffic engineering department has been established a new signal system, which is the flexible progressive type, has been installed in the central business district. Sixty-five intersections are controlled by master controller. Thirteen intersections have been equipped with neon "walk—don't walk" signals. Forty-eight intersections have actuated signal equipment of either semi or full actuated type. Four pedestrian push-button signals are in operation at school locations. There are other signal

locations that are inter-connected that range from six to eight intersections. Fifteen intersections have been channelized under the intersection re-design plan. Thirty intersections have the "tear drop" islands installed to improve the marginal flow and for pedestrian protection. All traffic control signs conform to the manual and special signs are built to meet specific problems. All signs are made in the traffic engineering sign shop.

The street lighting program is approximately 60 per cent completed for the entire city.

The traffic engineering department is now installing a 12 block directional lane signal system, which will use unbalanced lanes—two lanes inbound a. m., and two lanes outbound p. m.—on a three lane street, by use of neon direction arrows.

The department uses eight automatic traffic counters at 30 locations per month and have two radar type speed meters for speed checks.

We are all aware that traffic engineering and highway control is a specialized branch of engineering and should receive the necessary administrative support, and qualified personnel should be in charge.

Every city is confronted with transportation and traffic problems and some advances have been made to expedite the movement of traffic and relieve congestion. By searching the records we find that when these advancements have been accomplished it is where qualified traffic engineers were employed.

Cities and towns are faced with the movement of traffic, parking and loading shortages, inadequate mass transportation, and poorly designed street systems. The answers to these problems can be had if sound traffic engineering techniques are applied and understood by all persons concerned.